

10. (Currently Amended) The device of claim 8, wherein said carbon defines a dopant region that is approximately 10 - 500 ~~angstroms~~ Å in thickness.

11. (Currently Amended) The device of claim 8; A high performance SiGe HBT comprising a SiGe layer with a peak Ge concentration and a boron-doped base region having a thickness, wherein said base region includes diffusion limiting impurities throughout said thickness at a concentration below that of boron in said base region, wherein said diffusion limiting impurities are physically located relative to both said base region and a portion of said SiGe layer, and wherein said peak Ge concentration is at least approximately 20% to optimize performance and yield of said SiGe HBT and wherein said carbon has diffusion limiting impurity defines a dopant region having an upper bound and a lower bound, wherein said peak concentration thickness of said Ge has an upper bound and a lower bound, and wherein said lower bound of said ~~carbon~~ diffusion limiting impurity region is within approximately 150 ~~angstroms~~ Å of said upper bound of said peak concentration thickness of said Ge.

12. (Currently Amended) The device of claim ~~10~~ 11, wherein said base region is within approximately 200 - 250 ~~angstroms~~ Å of said upper bound of said peak concentration thickness of said Ge.